



OCT 06 1988

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
726 MINNESOTA AVENUE
KANSAS CITY, KANSAS 66101

Cherokee County
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MEMORANDUM

SUBJECT: September 28, 1988, Meeting on Action Levels

FROM: Alice C. Fuerst ✓
REMD/SPFD

TO: Files

1. Using the Public Health manual, Region 8 has calculated the action level for lead in soils to be 90 ppm.
2. There is controversy on whether lead sulfides are bioavailable, most research has been done on lead oxides.
3. The ingestion rates Region 8 used for children in residential setting were:

| | |
|----------------|------------|
| Average intake | 100 mg/day |
| Maximum intake | 500 mg/day |
4. Based on a MCL of 50 ug/l they have back calculated the action level to be 210 mg/kg, with the MCLG of 20 ug/l the action level is 90 mg/kg. If it is assumed only a third of the lead is absorbed the action level would be 630 mg/kg.
5. Some reports (EPA) say that lead sulfide is 60% absorbed.
6. Literature shows that lead sulfide converts to lead chloride in the gastric acids in body. Lead chloride is more soluble.
7. Six micron size particle can get into lungs.
8. Lead does not accumulate in lungs.
9. Blood lead is not good to use because there is a 20 to 30% reduction in the lead in the blood within 2 months, although accumulates in the bones. Lead is released from the bones in times of stress.
10. Region 8 was looking at all the data used to support the action levels, i.e. CDC's 500-1000 ppm and the 90 ppm levels. They will make a decision in 2 months on the action level for Sharon Steels Site.

cc: Gale Wright, REMD



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cc: Gale Wright, REMD
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Addendum to Preliminary Health Assessment of February 3, 1989
Cherokee County-Galena Subsite
Galena, Cherokee County, Kansas

July 13, 1989

The following discussion supplements the respective sections in the Cherokee County-Galena Subsite Preliminary Health Assessment of February 3, 1989:

Background

Information obtained from the U. S. Environmental Protection Agency (EPA) in June 1989, indicates that a 100,000 cubic yard chat pile, located northeast of the City of Galena, has been used by the Joplin Special Road District to produce asphalt, using the chat as the principle constituent. The asphalt production process has involved loading and transporting the chat to an open road surface area, owned by the Joplin Special Road District, where the chat is mixed with oil and formulated into a cold-asphalt mixture. This asphalt mixture is then used for patching pot holes and road surface overlaying. The asphalt is applied and then compacted. Greater than one-half of the chat pile has already been used for formulating asphalt.

The average concentration of lead in the remaining chat pile, based on eleven readings, was 1,040 parts per million (ppm). In addition, a composite sample of three discrete aliquots of chat detected lead at 1,080 ppm. The remedial clean-up action level established by EPA for the site is 1,000 ppm. This action level is based on the ATSDR Advisory Level of 500-1,000 ppm which is indicative of an increase in blood lead levels of children via ingestion and inhalation of lead-contaminated residential soils and dusts (ATSDR, 1988). EPA will use this action level as a guideline to determine what mine waste rock and chat are addressed in the proposed remedial action at the site.

The following documents were reviewed for the development of this Addendum:

Memo from Glen Curtis, EPA-Region VII, to David Parker, ATSDR, Region VII, June 14, 1989. Subject: Cherokee County - Galena Subsite, Chat Pile Owned by Joplin Road District.

U.S. Department of Health and Human Services. The Nature and Extent of Lead Poisoning in Children in the United States: A Report to Congress. Agency for Toxic Substances and Disease Registry, Atlanta, GA., (1988).

Evaluation and Discussion

Based on the average and composite sample concentrations for the remaining chat material, and the mixing proportions of chat:oil reported by the Joplin Special Road District, the calculated concentration of lead in the final asphalt-chat mixture will be about 980 ppm and 1,019 ppm,



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respectively. These calculated values are not significantly different from the remedial action clean-up level of 1,000 ppm. Furthermore, once the chat material is encapsulated in the asphalt mixture, the chat material itself should not pose an exposure threat to humans via inhalation and dermal contact if the roads where the asphalt is applied are properly maintained so that the asphalt-chat mixture does not deteriorate into its component parts. Obviously, as with any asphalt material, the asphalt-chat mixture should not be ingested because it may pose a public health threat primarily due to high levels of other toxic compounds normally found in asphalt (e.g., polycyclic aromatic hydrocarbons).

Conclusions and Recommendations

Based on the information and sampling data provided to ATSDR, it appears that the proposed use of the indicated chat pile will not pose a significant threat to public health. However, this conclusion does not apply to any other chat pile or to the use of chat for building unpaved roads.

Implement all applicable Occupational, Safety, and Health Administration (OSHA) regulations and National Institute of Safety and Health (NIOSH) precautionary measures during the loading, transport, unloading, and formulation of the asphalt-chat mixture to prevent workers from exposure to lead in the chat material. In addition, the dust control measures, as recommended by EPA, should be implemented.

Proper maintenance of roads where the asphalt-chat mixture has been or will be applied is necessary to insure that the mixture does not deteriorate into its component parts.